

What is claimed is:

1. A method for creating a permanent sub-network connection in a network of connected nodes includes:

defining a route including a working path for a permanent sub-network connection in the network of nodes from an ingress node to an egress node;

defining a time out period to be associated with the permanent sub-network connection, the time out period defining a time over which a failure in the permanent sub-network connection is permitted to be corrected prior to a tear down of the permanent sub-network connection;

provisioning the route;

distributing a route description to each node along the route from the ingress node to the egress node; and

configuring each node along the route in accordance with the route description to provide data traffic services from the ingress node to the egress node.

2. The method of claim 1 wherein the step of defining the route includes receiving an explicit route definition from a user defining the working path.

3. The method of claim 1 wherein the step of defining the route includes dynamically determining a working path including signaling nodes in the network to determine an optimal route between the ingress node and the egress node.

4. The method of claim 1 wherein the step of provisioning the route includes creating a DTL to describe the route.

5. The method of claim 4 wherein the step of distributing the route includes distributing the DTL to all other nodes along the route.

6. The method of claim 1 wherein the step of provisioning the route includes determining if a proposed route satisfies network constraints.

7. The method of claim 1 wherein the step of provisioning the route includes determining if resources are available in each node in a proposed route.
8. The method of claim 7 wherein the step of determining if resources are available includes signaling each node in the proposed route to determine if resources are available in each respective node.
9. The method of claim 1 wherein the step of defining a time out period includes determining an amount of time to wait prior to clearing resources for the route after a failure has been detected along the route.
10. The method of claim 1 wherein the step of provisioning the route includes determining if a proposed route satisfies predetermined node requirements for each node in the proposed route.
11. The method of claim 10 wherein the predetermined node requirements include quality of service requirements for a given node.
12. The method of claim 1 further comprising determining if the route can be provisioned, and if not, automatically calculating a working path that satisfies network and node requirements
13. The method of claim 12 further comprising determining if no route can be defined that satisfies the network and node requirement, and not provisioning the route.
14. A method for deallocating resources in a permanent sub-network connection, the permanent sub-network connection defining a connection between an ingress node and an egress node in a network of connected nodes, the method comprising:

detecting a failure in a path included in the permanent sub-network connection between an ingress and egress node;

determining if a predetermined time out period has expired since detection of the failure;

if the time out period has expired, determining if the failure has been corrected;

if the failure has not been corrected, deallocating resources associated with the permanent sub network connection.

15. The method of claim 14 wherein the step of determining a predetermined time out period has expired includes retrieving a time out period value associated with the failed permanent sub-network connection and initiating a timer with the time out period value.

16. The method of claim 14 wherein the step of deallocating resources includes signaling, by one or more nodes in a path forming the permanent sub-network connection between the ingress and egress nodes, to other nodes in the path instructions to tear down the path.

17. The method of claim 14 further comprising storing route information associated with the permanent sub-network connection prior to tear down such that at a time for restoring the permanent sub-network connection, no optimal routing determination is required.

18. A method for deallocating resources in a network of connected nodes, the method comprising:

detecting a failure in a path in the network;

determining if the path includes a permanent sub-network connection; and if so, for each permanent sub network connection

determining if a predetermined time out period has expired since detection of the failure;

if the time out period has expired, determining if the failure has been corrected;

if the failure has not been corrected, deallocated resources associated with the permanent sub network connection.

19. A method for deallocating resources in a network of connected nodes, the method comprising:

detecting a failure in a path in the network;

immediately clearing resources for all sub-network connections traversing the path;

waiting a pre-determined time out period prior to clearing all resources for each permanent sub-network connection traversing the path.